



PRODUCT OVERVIEW

Instruments for Radiation Protection

BE SURE

No Chance for Radioactive Contamination

Radionuclides are needed and useful in many fields of application. But, they may also be dangerous if improperly handled. Therefore working with radioactive materials in nuclear medicine, research or in other fields of radionuclide applications requires continuous monitoring to detect possible contamination of surfaces and objects in working areas, as well as on clothes and exposed skin.

With monitors from BERTHOLD TECHNOLOGIES, contamination is reliably detected, regardless which radionuclide or location.

If you need a portable instrument for monitoring surface contamination, we offer three product families. The handheld monitors LB 124 for single-hand operation with built-in large-area detectors or the versatile LB 134 system with externally connected contamination detectors. To detect possible contamination of personnel, the hand foot monitors LB 147 and LB 148 are available. Moreover, for larger laboratories or nuclear facilities, the floor monitors LB 165 and LB 166 are available to reliably assess widespread contamination.

LB 124



LB 134

- A range of detectors can be connected to the small, lightweight, portable instrument for measuring Alpha and Beta/Gamma with scintillation technology or tritium contamination
- Integrated dose rate detector
- PC Software



LB 165/LB 166

- Two versions for Beta-Gamma (LB 165) and Alpha-Beta (LB 166) contamination
- Detector entrance window of 2000 cm²
- Detector ground clearance adjustable from 6 to 24 mm



LB 124 family

- Different detector sizes and types available:
ZnS: Ag scintillator for Alpha and Beta/Gamma measurement
170 cm² - LB 124 SCINT
345 cm² - LB 124 SCINT-300
170 cm² & GM - LB 124 SCINT-D
sealed proportional counter tube with Xenon filling for Beta/Gamma measurement
150 cm² - LB 124B
- Large, easy-to-read backlit LCD display shows measured results in cps or Bq/cm² with factory defined, editable calibration factors for more than 50 radionuclides
- Software supports numerous measuring modes and parameter settings
- Easily configured both for unskilled user and for the demanding measuring expert



LB 148/LB 147

- Two versions: LB 148 for simultaneous back of hand measurement or LB 147 with back of hand measurement on demand
- No counting gas required
- Simultaneous Alpha and Beta/Gamma measurement
- Removable hand probe for frisker measurement
- Card reader/transponder for access control and user ID
- Remote parameter program



DOSE AND DOSE RATE

For Gamma, X-ray or Neutron radiation

Whoever works with radiation sources or X-ray machines in laboratories, radiology, radiography or in other technical irradiation facilities should be informed about current radiation levels at all times.

With dose and dose rate monitors from BERTHOLD TECHNOLOGIES you will quickly and reliably detect any increase in dose rate in the workplace that could lead to an undesired exposure of personnel.

In Gamma, X-ray or Neutron radiation field surveys the LB 134 does an excellent job as a dose and dose rate meter. The LB 123 D-H10 is the PTB type approved alternative device for gamma radiation. To measure gamma dose and dose rate with one single instrument the LB 126 is the perfect choice.

For stationary measurement of dose and dose rate with alarm capability the LB 112 system is available. Further possibilities are to use the portable monitors as semi-stationary systems.



LB 6411-Pb

LB 134

- Versatile combination system as dose and dose rate monitor for Gamma or Neutron radiation
- Integrated dose rate detector
- The small portable evaluation unit LB 134 allows connection of the gamma probe LB 1236-H10, the neutron probe LB 6411 or LB 6411-Pb for high energy neutrons
- Offers various measuring modes: cps, dose rate and dose integration



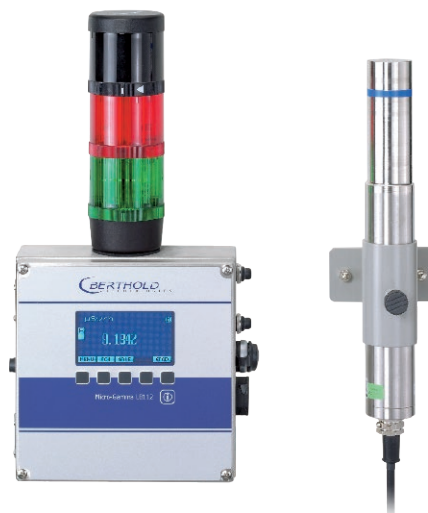
LB 126

- Handheld monitor for fast and reliable measurement of ambient dose equivalent $H^*(10)$ in photon radiation fields
- Easy operation by means of 3 softkeys
- Signal and alarm indication
- RS232 and RS485 data interface for printout and communication; RS485 networking for up to 32 devices



LB 112

- Two-channel system for gamma and neutron radiation detectors with data memory and data transfer
- Dose rate probes $H^*(10)$:
 - LB 6500-4-H10, GM-probe
 - LB 6500-3-H10, GM-probe
 - LB 6360-H10, Proportional counter
 - LB 6701L-H10, Ionisation chamber
 - LB 6701M-H10, Ionisation chamber
 - LB 6701H-H10, Ionisation chamber
 - LB 6411 for neutrons

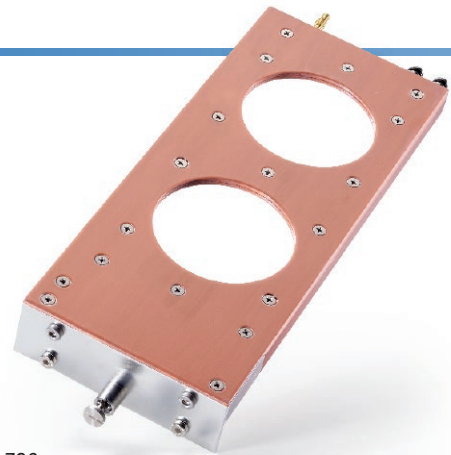


ACTIVITY MEASUREMENT

In order to meet radiological safety regulations for handling radioactive substances different sampling methods are used in the laboratory to measure activity such as smear samples, aerosol filters and evaporation residues. Environmental, drinking water and foodstuff samples may require the measurement of radioactivity and BERTHOLD TECHNOLOGIES supplies well-proven and easy to operate instruments for these tasks.



LB 790



LB 790
Dual-Detector

Low-Level counting systems:

- To measure extremely low Alpha and Beta activities in solid samples like air filters or ash, soil or evaporated water samples and smears
- Different detector sizes and types available:
10-fold Planchets with Ø 60 mm – LB 790
5x2-fold Planchets Ø 60 mm – LB 790-5
1 Planchet with Ø 200 mm – LB 761
- 10 cm lead shielding in all directions for optimal low background performance
- LB 780 Sample Changer for 200 samples available
- AMS Software ISO 11929 compliant



LB 761

LB 2046 and LB 2046-130

- To measure Alpha and Beta activities in solid samples like air filters or ash, soil or evaporated water samples and smears
- Scintillation detector – no counting gas required – different detector sizes available:
Ø 60 mm – LB 2046
Ø 130 mm – LB 2046-130
- Software ISO 11929 compliant



LB 2045

- Gamma spectroscopy system for activity measurements in laboratories
- Various scintillation probes 2"/3" are available for Marinelli beakers (0.4 l) or well-type samples



LB 2050

- Clearance Monitor with mobile detection unit
- Measurement volume of 150 litres
- Six large area Xenon counter tubes measure both beta and gamma radiation in 4-pi geometry
- The data are collected in the PC and are stored into a database



LB 200

- Portable Becquerel Monitor
- For field gamma measurements of environmental and foodstuff samples up to 0,5 l volume
- Detection Limit 20 Bq/l in 1h measuring time



MONITORING

of Airborne Radioactivity and Waste Water

The permanent supervision of radioactivity in room and exhaust air of larger laboratories or nuclear facilities and the environmental monitoring of nuclear power plants is an important radiation protection task. In recent years, the number of applications in nuclear decommissioning, processing and storing radioactive waste has increased.



For this purpose BERTHOLD TECHNOLOGIES offers a complete range from mobile instruments to customised complete measuring installations for particulates, gas, iodine and tritium monitoring. The data from different measuring instruments including dose rate meters, e.g. for PET centres or in environmental networks, can be visualised and archived, by the MEVIS Central Station. Get in touch with our product specialists to discuss your air monitoring problem in more detail.

Monitors from BERTHOLD TECHNOLOGIES guarantee safe and reliable measurements, but there is even more: make use of our know-how and our expertise for:

- Concept, design and layout
- Customised engineering and manufacturing
- Installation and commissioning
- Calibration
- Documentation
- Service

Over many years BERTHOLD TECHNOLOGIES has acquired a considerable know-how in handling customer-specific projects, and has excellent national and international references.

Tritium Monitors

- Monitoring of ^3H activity concentration in room and exhaust air
- Low interference of increased background levels or gaseous nuclides other than ^3H
- LB 110: proportional counter tube
- LB 671: ionization chamber



Airborne Particulate Monitoring

- Measurement of airborne artificial Alpha and Beta activity
- True real time monitor: collection, detection and evaluation are done simultaneously
- Prompt artificial Alpha/Beta activity measurement with Radon progeny compensation through ABPD & AED compensation method
- Representative sampling for both: stack monitoring with isokinetic extraction or room and workplace air monitoring



LB 150 D-R

- Uses a fixed filter
- Very high sampling rate of 40 m³/h



LB 9140, BAI 9128 MAXI and BAI 9100D

- Moving Filter Monitors
- Different types available:
Flow rate from 3 to 25 m³/h
ZnS/PIF-PMT, SiCAM, LaBr₃
or NaI Detectors

BAI 9125

- Gamma Liquid Effluent Monitor
- Detector arrangement: dipstick
- 25 litres stainless steel vessel ensures high contamination resistance
- Can be operated in by-pass or online modes

BAI 9103

- Iodine Monitor
- Measurement of ¹²⁵I/¹²⁹I or ¹³¹I
- NaI detector and activated charcoal cartridges are used
- Noble gas compensation with two window method

BAI 9109-4

- Monitoring of radioactive gases in rooms and discharged air
- Measurement of beta- and beta+ (positrons) nuclides
- 1 to 4 large area proportional counter tubes, xenon sealed
- LB 101D is the alternative with a large measuring chamber of 83 litres and spectroscopy option



NUCLEAR DATA PROCESSING

Visualise and Evaluate

BERTHOLD TECHNOLOGIES provides several data acquisition and processing systems as well as software equipment which could be used for a variety of measuring applications in all scopes of radiation protection measurement techniques:

- Air monitoring
- Water monitoring
- Environmental monitoring
- Activity measurements

LB 9000

- Universal multi-counter data acquisition system
- Software supports up to 50 virtual measuring channels combined with 20 analog outputs and 50 digital outputs
- Windows® operating system
- Industrial-PC with 12" TFT monitor and touch screen
- Embedded watchdog function



LB 5340

- Universal data acquisition system
- Software supports 6 radiometric measuring channels and 2 sensor inputs
- Windows® embedded operating system
- TFT touch display with fluorescence-backlight
- Embedded watchdog function



LB 112

- Stationary dual channel data logger
- Single or dual probe operation
- For gamma-/neutron counters and radioactive gas monitors
- LB 111 is the PTB type approved alternative device for dose rate probes



International Sales organization for Radiation Protection – Affiliated Companies

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